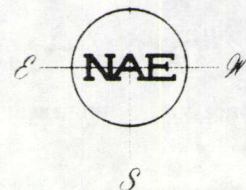


To: Holland Shepherd
From: Neil A. Simmons

NORTH AMERICAN EXPLORATION, INC.

GEOLOGY GEOPHYSICS GEOCHEMISTRY

SR/PR Rec'd FEB 13 1991



February 12, 1991

RECEIVED
FEB 15 1991

DIVISION OF
OIL, GAS & MINING

Mr. Neil Simmons
Department of Interior
Bureau of Land Management
900 North, 700 East
Price, Utah 84501

Dear Neil:

Enclosed is an addendum to the Gypsum Resource Development, Inc. (GRD) Plan of Operations. This addendum contains information you requested in our telephone conversation of Feb. 12, 1991. As you requested, I have also provided a map showing access roads to the nine hole grid (Phase I drilling), and a map showing the GRD controlled claims in the area. I am also enclosing some information on the drilling fluids which will probably be used.

If you require additional information, please call me at (801) 546-6453 or write to North American Exploration, 472 North Main, Kaysville, Utah 84037, Attention: Larry Trimble.

Thank you.

Sincerely,

Larry M. Trimble
Larry M. Trimble

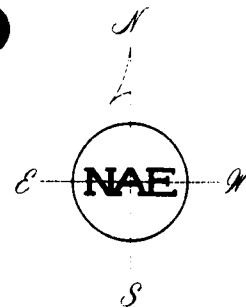
LMT/dek

Enclosures

cc: Correspondence
Project File

NORTH AMERICAN EXPLORATION, INC.

GEOLOGY GEOPHYSICS GEOCHEMISTRY



February 12, 1991

GYPSUM RESOURCE DEVELOPMENT, INC.

ADDENDUM TO PLAN OF OPERATIONS

LOCATION: This Plan of Operations covers activities in sections 13, 14, 23, 26, 34, 35 T 19 S, R 10 E.

DRILLING CONTRACTOR: Boyles Brothers Drilling Company
P. O. Box 25068
Salt Lake City, Utah 84125
(801) 972-3333

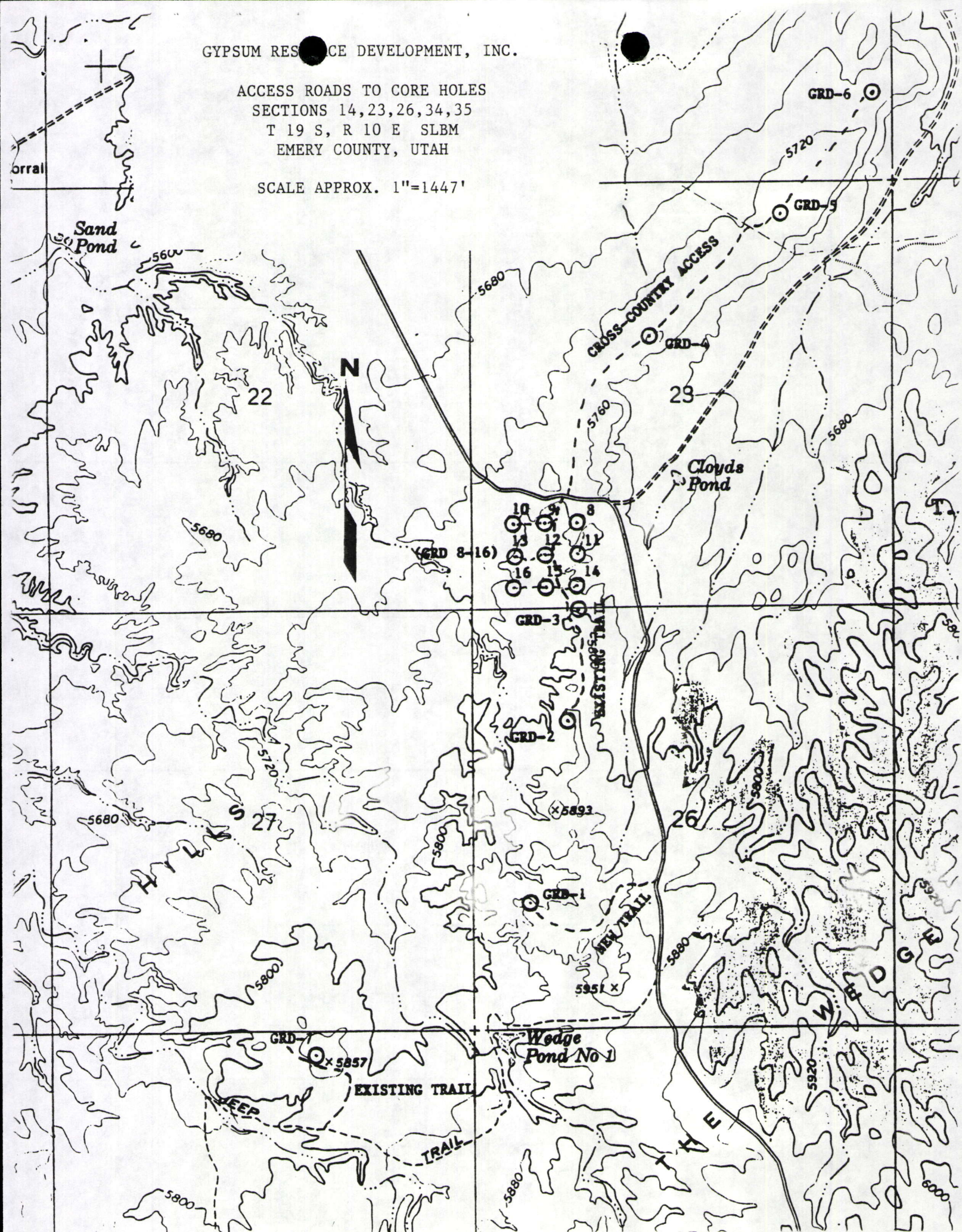
PROPOSED OPERATIONS:

The areas where proposed core holes GRD-1 and GRD-7 are located have not been surveyed for populations of San Raphael cactus. Drilling of the holes will be postponed until such a survey has been completed, and is contingent upon negative results of the survey.

GYPSUM RESOURCE DEVELOPMENT, INC.

ACCESS ROADS TO CORE HOLES
SECTIONS 14, 23, 26, 34, 35
T 19 S, R 10 E SLBM
EMERY COUNTY, UTAH

SCALE APPROX. 1"=1447'



PLACER CLAIM LOCATIONS
SECTIONS 13,14,22,23,24,26,27,34,35
T 19 S, R 10 E SLBM
EMERY COUNTY, UTAH

GYPSUM RESOURCE DEVELOPMENT, INC.

PLACER CLAIM LOCATIONS
SECTIONS 13,14,22,23,24,26,27,34,35
T 19 S, R 10 E SLBM
EMERY COUNTY, UTAH

SCALE 1"=2000'

Red Knoll

Buckhorn Well

Sand Pond

Clouds Pond

Wedge Pond No. 1

GEORGE #1

GEORGE #2

GEORGE #3

GEORGE #4

GEORGE #5

WHITE CAP #1

WHITE CAP #3

WHITE CAP #4

WHITE CAP #5

WHITE CAP #6

WHITE CAP #7

WHITE CAP #8

WHITE CAP #9

WHITE CAP #10

WHITE CAP #11

CYP #1

CHALK HILLS

WEDGE

Wash

Drought Relief Res

Corral

BM 5635

5635

5640

5650

5660

5670

5680

5690

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FLUIDRIL

Mud Systems

4446 West 1730 South / P.O. Box 30777 / Salt Lake City, Utah 84130, U.S.A.
Phone: (801) 974-5544 / Toll Free: (800) 453-8418 / Telex: 372-3464 / Fax: (801) 972-6769

AIR QUICK FOAMER PRODUCT DATA SHEET

GENERAL DESCRIPTION

Air Quick provides maximum foam under a wide range of field conditions, including waters ranging from fresh to high brines, and from soft to high calcium/magnesium hardness. Injection of an Air Quick solution into the air stream enables the air to carry inflowing water and cuttings out of the hole as a foam. Foam is the cuttings carrier, not the air, therefore, much less CFM is needed.

PHYSICAL PROPERTIES

Pour Point	-5°F
Flash Point	>200°F
Specific Gravity	1.07
Density	8.9 Lb/Gal
pH (neat)	9
Charge in Solution	Anionic
Activity	70%

RECOMMENDED USE

When drilling with air, and water is encountered, use 1 quart to 1 gallon Air Quick per 100 gallons of injection water. Inject the Air Quick solution at a rate of 6 to 10 Gal/Minute into the compressed air stream.

Stiff Foam. A stiff or stable foam mixture is used when drilling unstable formations. For clays, shales, and clayey silts, use 0.5 to 1 pint Clear Mud liquid polymer and 1 to 2 quarts Air Quick per 100 gallons. This mixture produces a foam with the consistency of thick shaving cream. For a 6 inch hole, only 40 to 60 CFM of compressed air is needed with stiff foam compared to 500 to 600 CFM needed with dry air. For loose sands and gravels, bentonite clay is used instead of or in conjunction with Clear Mud. Use 10 to 15 pounds Mud 2, 1 to 2 pounds soda ash, 0.25 to 0.5 pints Clear Mud, and 0.5 to 1.0 gallon Air Quick per 100 gallons of injection water.

PACKAGING

Air Quick is packaged in 5 gallon buckets and 55 gallon drums.

STORAGE AND HANDLING

Air Quick has been tested for compatibility with materials of construction and can be used with copper, aluminum, brass, mild steel, 304SS, 316SS, Placite 6000, Placite, rubber, neoprene, PVC, Hypalon, Teflon, Buna-N, plexiglass and polyurethane. Air Quick should not be used with Viton and vinyl.

CHRISTENSEN MINING PRODUCTS



A Product Line of CHRISTENSEN MINING PRODUCTS
A CBC COMPANY

STORAGE AND HANDLING (Continued)

Contact with skin and eyes should be avoided. If contact occurs, thoroughly wash with water. Use with adequate ventilation. Do not take internally.

ENVIRONMENTAL ACCEPTABILITY

Biodegradability has assumed an important role in our present day ecology. Stream pollution has occurred in many cases through the use of non-biodegradable foamers. Air Quick biodegrades in 24 to 48 hours, depending on temperature and moisture.



MATERIAL SAFETY DATA SHEET

PRODUCT AIR QUIK FLUIDRIL MUD SYSTEM

Emergency Telephone Number

Medical (312) 920-1510 (24 hours)

SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: AIR QUIK FLUIDRIL MUD SYSTEMS

DESCRIPTION: An oxyalkylated sulfate, glycol ether and ethylene glycol in water

NFPA 704M/HMIS RATING: 1/1 HEALTH 1/1 FLAMMABILITY 0/0 REACTIVITY 0 OTHER
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

SECTION 2 HAZARDOUS INGREDIENTS

Our hazard evaluation has identified the following chemical ingredient(s) as hazardous under OSHA's Hazard Communication Rule, 29 CFR 1910.1200. Consult Section 14 for the nature of the hazard(s).

INGREDIENT(S)	CAS #	APPROX. %
Ethylene glycol	107-21-1	5-10

SECTION 3 PRECAUTIONARY LABEL INFORMATION

Warning: Causes irritation to skin and eyes. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield when handling. Avoid prolonged or repeated breathing of vapor. Use with adequate ventilation. Do not take internally. Keep container closed when not in use.

Empty containers may contain residual product. Do not reuse container unless properly reconditioned.

SECTION 4 FIRST AID INFORMATION

EYES: Flush with water for 15 minutes. Call a physician.
SKIN: Flush with water for 15 minutes.
INGESTION: Induce vomiting. Give water. Call a physician.

NOTE TO PHYSICIAN: No specific antidote is known. Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

CAUTION: If unconscious, having trouble breathing or in convulsions, do not induce vomiting or give water.

SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: Eye, Skin



MATERIAL SAFETY DATA SHEET

PRODUCT AIR QUIK FLUIDRIL MUD SYSTEMS

Emergency Telephone Number
Medical (312) 920-1510 (24 hours)

SECTION 5 HEALTH EFFECTS INFORMATION

(CONTINUED)

EYE CONTACT: May cause irritation with prolonged contact.
SKIN CONTACT: May cause irritation with prolonged contact.
INGESTION: Can be harmful.

SYMPTOMS OF EXPOSURE: A review of available data does not identify any symptoms from exposure not previously mentioned, or identified in Section 6 or 14.

AGGRAVATION OF EXISTING CONDITIONS: A review of available data does not identify any worsening of existing conditions.

SECTION 6 TOXICOLOGY INFORMATION

ACUTE TOXICITY STUDIES: No toxicity studies have been conducted on this product.

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR: Clear yellow	FORM: Liquid	ODOR: Sweet
SOLUBILITY IN WATER:	Completely	
SPECIFIC GRAVITY:	1.07 @ 60 Degrees F	
pH (NEAT) =	7.7	ASTM E-70
VISCOSITY:	275 SUS @ 60 Degrees F	ASTM D-445
POUR POINT:	-13 Degrees F	ASTM D-97
FLASH POINT:	None (FMCC)	ASTM D-93
PERCENT VOLATILE BY WEIGHT:	9 @ 75 Degrees F	

NOTE: These physical properties are typical values for this product.

SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: None (FMCC) ASTM D-93

EXTINGUISHING MEDIA: This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use water to cool containers exposed to fire.

UNUSUAL FIRE AND EXPLOSION HAZARD: May evolve SOx under fire conditions.



MATERIAL SAFETY DATA SHEET

PRODUCT AIR QUIK FLUIDRIL MUD SYSTEM

Emergency Telephone Number

Medical (312) 920-1510 (24 hours)

SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY: Avoid contact with strong oxidizers (eg. chlorine, peroxides, chromates, nitric acid, perchlorates, concentrated oxygen, permanganates) which can generate heat, fires, explosions and the release of toxic fumes.

THERMAL DECOMPOSITION PRODUCTS: In the event of combustion CO, CO₂, SO_x may be formed. Do not breathe smoke or fumes. Wear suitable protective equipment.

SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION: Respiratory protection is not normally needed since the volatility and toxicity are low. If significant mists or aerosols are generated, wear a NIOSH approved or equivalent respirator, (ANSI Z 88.2, 1980 for requirements and selection).

For large spills, entry into large tanks, vessels or enclosed small spaces with inadequate ventilation, a pressure-demand, self-contained breathing apparatus is recommended.

VENTILATION: General ventilation is recommended.

PROTECTIVE EQUIPMENT: Use impermeable gloves and chemical splash goggles (ANSI Z 87.1 requirements and selection of gloves, goggles, shoes, etc.) when attaching feeding equipment or doing maintenance.

If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (312-920-1510)

SPILL CONTROL AND RECOVERY:

Small liquid spills: Contain with absorbent material, such as clay, soil or any commercially available absorbent. Shovel reclaimed liquid and absorbent into recovery or salvage drums for disposal. Refer to CERCLA in Section 14.

Large liquid spills: Dike to prevent further movement and reclaim into recovery or salvage drums or tank truck for disposal. Refer to CERCLA in Section 14.



MATERIAL SAFETY DATA SHEET

PRODUCT AIR QUIK FLUIDRIL MUD SYSTEMS

Emergency Telephone Number

Medical (312) 920-1510 (24 hours)

SECTION 11 SPILL AND DISPOSAL INFORMATION

(CONTINUED)

DISPOSAL: If this product becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, (i.e. D001 through D017) nor is it listed under Subpart D.

As a non-hazardous liquid waste, it should be solidified before disposal to a sanitary landfill. Can be incinerated in accordance with local, state and federal regulations.

SECTION 12 ENVIRONMENTAL INFORMATION

If released into the environment, see CERCLA in Section 14.

SECTION 13 TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME/HAZARD CODE - PRODUCT IS NOT REGULATED DURING TRANSPORTATION

SECTION 14 REGULATORY INFORMATION

The following regulations apply to this product.

FEDERAL REGULATIONS:

OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:

Based on our hazard evaluation, the following ingredient in this product is hazardous and the reason is shown below.

Ethylene glycol = TWA 50 ppm, 125 mg/m³ (ceiling) ACGIH TLV

CERCLA/SUPERFUND, 40 CFR 117, 302:

Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312 AND 313:

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):

This product does not contain ingredients listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 and 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370):



MATERIAL SAFETY DATA SHEET

PRODUCT AIR QUIK FLUIDRIL MUD SYSTEM

Emergency Telephone Number
Medical (312) 920-1510 (24 hours)

SECTION 14 REGULATORY INFORMATION

(CONTINUED)

Our hazard evaluation has found this product to be hazardous. The product should be reported under the following EPA hazard categories:

- XX Immediate (acute) health hazard
- XX Delayed (chronic) health hazard
- Fire hazard
- Sudden release of pressure hazard
- Reactive hazard

Under Section 311, submittal of MSDS's or a list of product names to the local emergency planning commission, state emergency response commission and local fire department is required after October 17, 1987 if you have:

- 10,000 pounds or more of a hazardous substance, or
- 500 pounds or the threshold planning quantity, whichever is less, of an extremely hazardous substance.

After October 17, 1989, MSDS(s), or a list of product names for all hazardous substances between zero (0) and 10,000 pounds, not previously reported, must be submitted.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):

This product contains the following ingredient(s), (with CAS # and % range) which appear(s) on the List of Toxic Chemicals.

Ethylene glycol	107-21-1	5-10
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TOXIC SUBSTANCES CONTROL ACT (TSCA):

The chemical ingredients in this product are on the 8(b) Inventory List (40 CFR 710).

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:
If this product becomes a waste, it does not meet the criteria of a hazardous waste.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 (formerly Sec. 307), 40 CFR 116 (formerly Sec. 311):
None of the ingredients are specifically listed.

CLEAN AIR ACT, 40 CFR 60, SECTION 111, 40 CFR 61, SECTION 112:
This product contains the following ingredients covered by the Clean



MATERIAL SAFETY DATA SHEET

PRODUCT AIR QUIK FLUIDRIL MUD SYSTEMS

Emergency Telephone Number
Medical (312) 920-1510 (24 hours)

SECTION 14 REGULATORY INFORMATION

(CONTINUED)

Air Act:

Ethylene glycol - Section 111
Diethylene glycol monobutyl ether - Section 111

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:
None of the chemicals on the current Proposition 65 list are known to be present in this product.

MICHIGAN CRITICAL MATERIALS:
This product does not contain ingredients listed on the Michigan Critical Materials Register.

STATE RIGHT TO KNOW LAWS:
Regulated in those states using the TLV for ethylene glycol as a criteria for listing.

INTERNATIONAL REGULATIONS:

This is a WHMIS controlled product under The House of Commons of Canada Bill C-70. The product contains the following substance(s), from the Ingredient Disclosure List or has been evaluated based on its toxicological properties, to contain the following hazardous ingredient(s):

Chemical Name	CAS #	% Concentration Range
Ethylene glycol	107-21-1	5-10

SECTION 15 ADDITIONAL INFORMATION

None

SECTION 16 USER'S RESPONSIBILITY

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to ensure safe workplace operations. Please consult your local sales representative for any further information.



MATERIAL SAFETY DATA SHEET

PRODUCT AIR QUIK FLUIDRIL MUD SYSTEM

Emergency Telephone Number

Medical (312) 920-1510 (24 hours)

SECTION 17 BIBLIOGRAPHY

ANNUAL REPORT ON CARCINOGENS, U.S. Department of Health and Human Services, Public Health Service, PB 33-135855, 1983.

CASARETT AND DOULL'S TOXICOLOGY, THE BASIC SCIENCE OF POISONS, Doull, J., Klaassen, C. D., and Admur, M. O., eds., Macmillian Publishing Company, Inc., N. Y., 2nd edition, 1980.

CHEMICAL HAZARDS OF THE WORKPLACE, Proctor, N. H., and Hughes, J. P., eds., J. P. Lipincott Company, N.Y., 1981.

DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, Sax, N. Irving, ed., Van Nostrand Reinhold Company, N.Y., 6th edition, 1984.

IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO MAN, Geneva: World Health Organization, International Agency for Research on Cancer, 1972-1977.

PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY, Clayton, G. D., Clayton, F. E., eds., John Wiley and Sons, N. Y., 3rd edition, Vol. 2 A-C, 1981.

REGISTRY OF TOXIC EFFECTS ON CHEMICAL SUBSTANCES, U.S. Department of Health and Human Services, Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health, 1983 supplement of 1981-1982 edition, Vol. 1-3, OH, 1984.

Title 29 Code of Federal Regulations Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA).

THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS IN THE WORKROOM ENVIRONMENT WITH INTENDED CHANGES, American Conference of Governmental Industrial Hygienists, OH.

PREPARED BY: John J. Kasper, MSc., Manager Product Safety

DATE CHANGED: 01/18/89

DATE PRINTED: 04/14/89

Mud Systems

CLEARMUD

PRODUCT DESCRIPTION

CLEARMUD is a high molecular weight liquid polymer viscosifier. Its primary function is to provide viscosity in water-based mud systems. CLEARMUD is also an effective bentonite extender and an excellent shale stabilizer. CLEARMUD mixes easily and quickly with little agitation.

ADVANTAGES

- Provides viscosity quickly.
- Excellent shale stabilizer.
- Extends bentonite.
- Effective fluid loss control additive.
- Lubricates the hole and bit.
- Reduces torque and pressure losses.
- EPA approved for potable water sources.
- Easily degradable with sodium hypochlorite (Household bleach) for well flushing.
- Effective foam stabilizer.
- Selectively flocculates cuttings.
- Hydrodynamic drag reducer.

PHYSICAL PROPERTIES

Polymer content by weight	35%
Pour Point	-20°F.
Appearance	Milky white
Nature of charge	30% Anionic
Freeze/thaw cycle does not affect product performance.	

RECOMMENDED USE

VISCOSIFYING CLEAR WATER: A ratio of 3 quarts of CLEARMUD to 500 gallons of water will produce a Marsh Funnel viscosity of about 38-40 sec/qt.

STABILIZING SHALE: Use CLEARMUD as needed to reduce shale hydration. Typical additions range from ½ to 4 quarts per 500 gallons of mud depending on the severity of the shale problem. CLEARMUD may be used with KCl to further enhance shale stabilization.

FLOCCULATING CUTTINGS: Use

CLEARMUD sparingly (1/8 to 1/2 quart / 500 gallons mud) to flocculate and settle cuttings. One method used to flocculate cuttings is to mix a small amount of CLEARMUD in a 5 gallon bucket of water and allow the solution to drip into the return ditch while circulating.

EXTENDING BENTONITE: Add ½ to 1 quart of CLEARMUD to 500 gallons of bentonite mud to increase the yield of the bentonite. Use approximately one half of the normal addition of bentonite when making up fresh mud with CLEARMUD.

WATER WELLS: The polymer in CLEARMUD can be broken down by the addition of sodium hypochlorite (common household bleach). Add one gallon of household bleach (Do not use HTH: Swimming pool chlorine) for each 500 gallons of mud, circulate the mud/bleach through the well and monitor the return viscosity. Polymer degradation will be complete in about two hours when the mud viscosity drops back near to that of water.

FOAM STABILIZATION: To produce a stiff drilling foam add two cups* of CLEARMUD to each 100 gallons of make-up water before adding the foaming agent.

* 1 cup = 8 fluid ounces.

PACKAGING

CLEARMUD is available in 5 gallon buckets and 55 gallon drums.

USER SAFETY

For minor spills, wipe up thoroughly and then wash down with diluted bleach solution; diesel may also be used to clean up spills.



CHRISTENSEN MINING PRODUCTS

4446 West 1730 South / P.O. Box 30777 / Salt Lake City, Utah 84130, U.S.A.
Phone: (801) 974-5544 / Toll Free: (800) 453-8418 / Telex: 372-3464 / Fax: (801) 972-6769



MATERIAL SAFETY DATA SHEET

PRODUCT CLEAR MUD FLUIDRIL MUD SYSTEM

Emergency Telephone Number
Medical (312) 920-1510 (24 hours)

SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: CLEAR MUD FLUIDRIL MUD SYSTEM

DESCRIPTION: An acrylamide sodium acrylate copolymer in a water and hydrocarbon emulsion

NFPA 704M/HMLS RATING: 1/1 HEALTH 1/1 FLAMMABILITY 0/0 REACTIVITY 0 OTHER
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

SECTION 2 HAZARDOUS INGREDIENTS

Our hazard evaluation has identified the following chemical ingredient(s) as hazardous under OSHA's Hazard Communication Rule, 29 CFR 1910.1200. Consult Section 14 for the nature of the hazard(s).

INGREDIENT(S)	CAS #	APPROX. %
Paraffinic/naphthenic solvent	64742-47-8	20-40
Ethoxylated nonylphenol	9016-45-9	1-10

SECTION 3 PRECAUTIONARY LABEL INFORMATION

CAUTION: May cause irritation to skin and eyes. Avoid contact with skin, eyes and clothing. Do not take internally.

Empty containers may contain residual product. Do not reuse container unless properly reconditioned.

SECTION 4 FIRST AID INFORMATION

EYES: Flush with water for 15 minutes. Call a physician.
SKIN: Wash thoroughly with soap and rinse with water. Call a physician.
INGESTION: Do not induce vomiting. Give water. Call a physician.

NOTE TO PHYSICIAN: No specific antidote is known. Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

CAUTION: If unconscious, having trouble breathing or in convulsions, do not induce vomiting or give water.

SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: Eye, Skin



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SECTION 5 HEALTH EFFECTS INFORMATION

(CONTINUED)

EYE CONTACT: Can cause moderate irritation.
SKIN CONTACT: Can cause moderate irritation.

SYMPTOMS OF EXPOSURE: A review of available data does not identify any symptoms from exposure not previously mentioned, or identified in Section 6 or 14.

AGGRAVATION OF EXISTING CONDITIONS: A review of available data does not identify any worsening of existing conditions not previously mentioned, or identified in Section 6 or 14.

SECTION 6 TOXICOLOGY INFORMATION

ACUTE TOXICITY STUDIES: Acute toxicity studies have not been conducted on this product, but acute studies have been conducted on a similar product. The results are shown below.

ACUTE ORAL TOXICITY (ALBINO RATS): LD50 = Greater than 5,000 mg/kg

PRIMARY SKIN IRRITATION TEST (ALBINO RABBITS):

SKIN IRRITATION INDEX DRAIZE RATING: 1.33/8.0 Mildly irritating

PRIMARY EYE IRRITATION TEST (ALBINO RABBITS):

EYE IRRITATION INDEX DRAIZE RATING: 26.5/110.0 Moderately irritating

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR: Ivory	FORM: Liquid	ODOR: Hydrocarbon
DENSITY: 9.0 lbs/gal.		
SPECIFIC GRAVITY: 1.08 @ 69 Degrees F		ASTM D-1298
pH (NEAT) = 6		ASTM E-70
VISCOSITY: 375 cps @ 69 Degrees F		ASTM D-2983
FREEZE POINT: -6 Degrees F		ASTM D-1177
BOILING POINT: 176 Degrees F @ 760 mm Hg		ASTM D-86
FLASH POINT: Greater than 200 Degrees F (FMCC)		ASTM D-93

NOTE: These physical properties are typical values for this product.

SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: Greater than 200 Degrees F (FMCC) ASTM D-93

EXTINGUISHING MEDIA: This product would not be expected to burn unless all the water is boiled away. The remaining organics may be



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SECTION 8 FIRE AND EXPLOSION INFORMATION

(CONTINUED)

ignitable. Use water to cool containers exposed to fire.

UNUSUAL FIRE AND EXPLOSION HAZARD: May evolve NOx under fire conditions.

SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY: Avoid contact with strong oxidizers (eg. chlorine, peroxides, chromates, nitric acid, perchlorates, concentrated oxygen, permanganates) which can generate heat, fires, explosions and the release of toxic fumes.

THERMAL DECOMPOSITION PRODUCTS: In the event of combustion CO, CO2, NOx may be formed. Do not breathe smoke or fumes. Wear suitable protective equipment.

SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION: Respiratory protection is not normally needed.

For large spills, entry into large tanks, vessels or enclosed small spaces with inadequate ventilation, a pressure-demand, self-contained breathing apparatus is recommended.

VENTILATION: General ventilation is recommended.

PROTECTIVE EQUIPMENT: Use impermeable gloves and chemical splash goggles (ANSI Z 87.1 requirements and selection of gloves, goggles, shoes, etc.) when attaching feeding equipment or doing maintenance.

If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (312-920-1510)

SPILL CONTROL AND RECOVERY:

Small liquid spills: Contain with absorbent material, such as clay, soil or any commercially available absorbent. Shovel reclaimed liquid and absorbent into recovery or salvage drums for disposal. Refer to CERCLA in Section 14.



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SECTION 11 SPILL AND DISPOSAL INFORMATION

(CONTINUED)

Large liquid spills: Dike to prevent further movement and reclaim into recovery or salvage drums or tank truck for disposal. Refer to CERCLA in Section 14.

DISPOSAL: If this product becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, (i.e. D001 through D017) nor is it listed under Subpart D.

As a non-hazardous liquid waste, it should be solidified before disposal to a sanitary landfill. Can be incinerated in accordance with local, state and federal regulations.

SECTION 12 ENVIRONMENTAL INFORMATION

AQUATIC DATA: Similar product results.

96-hour static acute LC50 to Rainbow Trout = Greater than 1,000 mg/L

TOXICITY RATING: Essentially non-toxic

COMMENTS: Tests conducted on 1% solution.

OTHER STUDIES:

96-hour LC50 to Sheepshead minnow = Greater than 1,000 mg/L

96-hour LC10 to Mysid shrimp = 400 mg/L

48-hour LC50 to Daphnia magna = 280 mg/L

COMMENTS: Tests conducted on 1% solution.

If released into the environment, see CERCLA in Section 14.

SECTION 13 TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME/HAZARD CODE - PRODUCT IS NOT REGULATED
DURING TRANSPORTATION

SECTION 14 REGULATORY INFORMATION

The following regulations apply to this product.

FEDERAL REGULATIONS:



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SECTION 14 REGULATORY INFORMATION

(CONTINUED)

OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:
Based on our hazard evaluation, the following ingredients in this product are hazardous and the reasons are shown below.

Paraffinic/naphthenic solvent - Skin irritant
Ethoxylated nonylphenol - Eye irritant

Paraffinic solvent = TWA 350 mg/m³
Refined Petroleum Solvent Criteria Document, July, 1977

CERCLA/SUPERFUND, 40 CFR 117, 302:
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986
(TITLE III) - SECTIONS 302, 311, 312 AND 313:

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):
This product does not contain ingredients listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 and 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS
(40 CFR 370):

Our hazard evaluation has found this product to be hazardous.
The product should be reported under the following EPA hazard categories:

- XX Immediate (acute) health hazard
- Delayed (chronic) health hazard
- Fire hazard
- Sudden release of pressure hazard
- Reactive hazard

Under Section 311, submittal of MSDS's or a list of product names to the local emergency planning commission, state emergency response commission and local fire department is required after October 17, 1987 if you have:

- 10,000 pounds or more of a hazardous substance, or
- 500 pounds or the threshold planning quantity, whichever is less, of an extremely hazardous substance.

After October 17, 1989, MSDS(s), or a list of product names for all hazardous substances between zero (0) and 10,000 pounds,



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SECTION 14 REGULATORY INFORMATION

(CONTINUED)

not previously reported, must be submitted.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):

This product does not contain ingredients (at a level of 1% or greater) on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA):

The chemical ingredients in this product are on the 8(b) Inventory List (40 CFR 710).

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:

If this product becomes a waste, it does not meet the criteria of a hazardous waste.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15

(formerly Sec. 307), 40 CFR 116 (formerly Sec. 311):

None of the ingredients are specifically listed.

CLEAN AIR ACT, 40 CFR 60, SECTION 111, 40 CFR 61, SECTION 112:

This product does not contain ingredients covered by the Clean Air Act.

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:

This product complies with the MSDS and labeling requirements of the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

MICHIGAN CRITICAL MATERIALS:

This product does not contain ingredients listed on the Michigan Critical Materials Register.

STATE RIGHT TO KNOW LAWS:

This product does not contain ingredients listed by State Right To Know Laws.

SECTION 15 ADDITIONAL INFORMATION

None

SECTION 16 USER'S RESPONSIBILITY

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with



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SECTION 16 USER'S RESPONSIBILITY

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our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to ensure safe workplace operations. Please consult your local sales representative for any further information.

SECTION 17 BIBLIOGRAPHY

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SECTION 17 BIBLIOGRAPHY

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